

**Q1** What is your organisation's/project's name?

NEXTGenIO

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**Q2** Your organisation's/project's website

www.nextgenio.eu

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**Q3** Are you?

**A project**

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**Q4** Your name

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**Q5** Your email address

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**Q6** Your contact phone number

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**Q7** Please summarise who you are and what you do

The NEXTGenIO project has eight partners: EPCC, the supercomputing centre at the University of Edinburgh (project coordinator), Intel GmbH, Fujitsu, Barcelona Supercomputing Centre, TU Dresden, Allinea (now part of ARM), ECMWF and Arctur.

NEXTGenIO addresses a key challenge not only for Exascale, but also for HPC and data intensive computing in general: the challenge of I/O performance. As core-counts have massively increased over the past few years, the performance of I/O subsystems have struggled to keep up with computational performance and have become a key bottleneck on today's largest systems. NEXTGenIO is develop a prototype computing platform that uses on-node non-volatile memory (NVRAM), bridging the latency gap between DRAM and disk, thus removing this bottleneck. In addition to the hardware that is built as part of the project, NEXTGenIO is developing the software stack (from OS and runtime support to programming models and tools) that goes hand-in-hand with this new hardware architecture.

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**Q8** In what way would like to contribute to an EsD project? **As a technology provider,**  
**As a system**  
**integrator**

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**Q9** What would be your contribution to an EsD project?

NEXTGenIO could bring a number of contributions to an EsD project:

- Prototype compute nodes with non-volatile memory for I/O and memory operations.
- Profiling and debugging tools that support non-volatile memory.
- Data and power/energy aware job scheduling system that understands non-volatile memory.
- Filesystem (echoFS) and object store (dataClay) for non-volatile memory.
- Library for development of high-level persistent data structures in non-volatile memory.
- Workload benchmark generator (Kronos) and I/O workflow simulator.

NEXTGenIO's extensive experience with NVRAM will be an asset to any EsD project that targets premier I/O and memory performance.

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**Q10** What partners are you looking for?

NEXTGenIO wants to join forces with a consortium of partners that can use our system design and software ecosystem directly, or integrate it into an alternative system design, either in part or in full.

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**Q11** Please include links to any additional material.

NEXTGenIO publications: <http://www.nextgenio.eu/publications>

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**Q12** Other comments/ideas

**Respondent skipped this question**

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